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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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EXAMINER	
PAN, YUWEN	

ART UNIT	PAPER NUMBER
2682	

DATE MAILED: 06/30/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	09/773,275	KUIRI ET AL.	
	Examiner	Art Unit	
	Yuwen Pan	2682	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *26 April 2005*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-7,9-26 and 28-42* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-7,9-26 and 28-42* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

Response to Arguments

1. Applicant's arguments, see applicants' remark, filed on 4/15/05, with respect to the rejection(s)of claim(s) 1-7, 9-26 and 28-38 under 35 U.S.C 103 have been fully considered and are persuasive. Therefore, the rejection has been withdrawn. However, upon further consideration, a new ground(s) of rejection is made in view of Gilhousen et al (US006157668A).

DETAILED ACTION

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

3. Claims 1, 2, 6, 8-23, 25, 28, 29, 31, 33, and 39-42 are rejected under 35 U.S.C. 103(a) as being unpatentable by Wang (US005918184A) in view of Gilhousen et al (US006157668A).

Per claims 1,2,16,17, and 41, Wang discloses a method of avoiding adjacent channel interference and reducing disconnections caused thereby during communication between a mobile device and a base station that communicate via a communication channel in a wireless communication network (see figures 1 and 4, column 5 and lines20-33) comprising the steps of:

measuring received power of a received signal at a point before the received signal is filtered for providing a received power measurement signal having a magnitude indicative thereof (see column 4 and lines 12-17);

filtering the received signal for providing a filtered signal (see column 4 and lines 26-34);

measuring post-filter power (see figure 1 and item 32 and 34)of the filtered signal for providing a filtered power measurement signal having a magnitude indicative thereof; estimating

from the received power measurement signal and the filtered power measurement signal a power ratio having a magnitude indicative of a degree to which the adjacent channel interference exceeds communication channel power (see column 4 and lines 1-11); and

requesting (314) a handover to an alternative communication channel available for data transmission to and from the mobile device via said alternative communication channel, if said power ratio is greater than a certain threshold, (see column 5 and lines 35-64),

wherein the steps of measuring, filtering, remeasuring and estimating are performed while the mobile device is capable of using the communication channel for receiving and transmitting data (see column 3 and lines 17-29).

Wang teaches that the aforementioned steps are processed in a base station. Wang doesn't explicitly teach that the aforementioned steps are done within the mobile device. However, it is inherent because Wang does disclose that a mobile device is capable of doing mobile assisted handoff, the mobile device could measure the signal power to noise power ratio and report this information to the cell site based station in making the hand off decision for the mobile to base direction, in which could contain the aforementioned steps (see column 2 and lines 32-56).

Wang doesn't teach that the handover is occurred with in the same base station. Gilhousen et al teaches that a softer handoff has been utilized within a wireless communication system (see column 6 and lines 7-23).

It would have been obvious to one ordinary skill in the art at the time the invention was made to combine the teaching of Gilhousen with Wang's system such that reducing transmission power from the weaker sector reduces the average power transmitted from each sector with in a cell and therefore reduces interference to the mobile units in the system.

Per claims 18, and 42, Wang discloses a telecommunication system while avoiding adjacent channel interference and reducing disconnections caused thereby, comprising:

a digitized signal power monitor responsive to a digital received signal for providing a digital received power measurement signal having a magnitude indicative of communication channel power combined with a remainder of adjacent channel interference (see figure 1 and item 36, 40 and column 4 and lines 27-34);

at least one selected filter responsive to the digital received signal for providing a digitally filtered signal (see figure 1 and item 42);

a post-filter signal power monitor responsive to the digitally filtered signal for providing a digital filtered power measurement signal having a magnitude indicative of the communication channel power(see figure 1 and item 32);

and an algorithm module responsive to the digital received power measurement signal and the digital filtered power measurement signal for providing a handover information signal having a magnitude which will be used outside the mobile device to determine whether a handover will occur (see figure 1 and item 44 and column 5 and 8-19).

Wang teaches that the aforementioned steps are processed in a base station. Wang doesn't explicitly teach that the aforementioned steps are done within the mobile device. However, it is inherent because Wang does disclose that a mobile device is capable of doing mobile assisted handoff, the mobile device could measure the signal power to noise power ratio and report this information to the cell site based station in making the hand off decision for the mobile to base direction, in which could contain the aforementioned steps (see column 2 and lines 32-56).

Wang doesn't teach that the handover is occurred with in the same base station. Gilhousen et al teaches that a softer handoff has been utilized within a wireless communication system (see column 6 and lines 7-23).

It would have been obvious to one ordinary skill in the art at the time the invention was made to combine the teaching of Gilhousen with Wang's system such that reducing transmission power from the weaker sector reduces the average power transmitted from each sector with in a cell and therefore reduces interference to the mobile units in the system.

Per claims 33, 39, and 40, Wang discloses a system for avoiding adjacent channel interference and reducing disconnections caused thereby during communication via a communication in a wireless communication network (see figures 1 and 4, column 5 and lines20-33) comprising:

A mobile device responsive to a received signal (SAT) transmitted over a wireless interface for a base station in the area to determine the existing of the mobile device and determine the power ratio,

The base station measures the received signal from the mobile device and determining the power ratio of the SAT signal over the noise and being responsive to the handover information signal by switch the communication to an alternative communication channel if the power ratio exceeds a certain threshold.

Wang teaches that the aforementioned steps are processed in a base station. Wang doesn't explicitly teach that the aforementioned steps are done within the mobile device. However, it is inherent because Wang does disclose that a mobile device is capable of doing mobile assisted

handoff, the mobile device could measure the signal power to noise power ratio and report this information to the cell site based station in making the hand off decision for the mobile to base direction, in which could contain the aforementioned steps (see column 2 and lines 32-56).

Wang doesn't teach that the handover is occurred with in the same base station. Gilhousen et al teaches that a softer handoff has been utilized within a wireless communication system (see column 6 and lines 7-23).

It would have been obvious to one ordinary skill in the art at the time the invention was made to combine the teaching of Gilhousen with Wang's system such that reducing transmission power from the weaker sector reduces the average power transmitted from each sector with in a cell and therefore reduces interference to the mobile units in the system.

Per claim 6 and 13, 25, Gilhousen further discloses that the alternative communication channel is adjacent to the communication channel and is one of a group of mutually adjacent frequency channels which are associated with the base station throughout base station coverage area, and also wherein the group of mutually adjacent frequency channels is different from all other groups of mutually adjacent frequency channels associated with other base stations having other coverage areas overlapping at least partly with the base station coverage area (see figure 3 and column 8 and lines 42-60).

Per claim 10, Wang further discloses that at least one of the other coverage areas is a microcell completely within the base station coverage area (see figure 4).

Per claims 15 and 31, Wang doesn't disclose that the data transmission between the mobile device and the base station employs uplink frequencies which are separated from downlink frequencies by a duplex spacing. It is inherent to have the data transmission between the mobile device and the base station employs uplink frequencies which are separated from downlink frequencies by a duplex spacing such that there is no co-frequency interference between full duplex communication.

Per claims 9, Wang further discloses the handoff will cause the mobile device to stop communicating with the base station and start communicating with a different base station (see column 5 and lines 51-63).

Per claims 11, 28, Wang further discloses that the method occurs in parallel with normal reception and normal communication capacity on the communication channel (see column 1 and line 30-33).

Per claims 12, 19, 29, Wang further discloses that the certain threshold is less than or equal to a maximum ratio of adjacent channel interference to communication channel power tolerated by the mobile device with negligible risk of disconnection (see column 5 and lines 52-64).

Per claims 20-23, Wang further discloses that the estimated power ratio of adjacent channel interference to the communication channel power and the handoff will occur if the

estimated power ratio is greater than a certain threshold established by a component of the of the wireless communication network other than the mobile device (see column 5 and lines 51-64).

4. Claims 3-5, 7, 14, 24, 26, 27, 30, 32, and 34-38 are rejected under 35 U.S.C. 103(a) as being unpatentable over Wang (US005918184A) and Gilhousen et al (US006157668A) and in further view of Lilja et al (WO 00/36867).

Per claim 3, 4,5, 24 and 36, Wang doesn't expressly disclose detail components of the mobile device such as, a demodulator responsive to a once-filtered signal for providing a demodulated signal having in-phase and quadrature components;

at least one analog filter responsive to the demodulated signal for providing a twice-filtered signal;

and an analog-to-digital converter responsive to the twice-filtered signal for providing the digital received signal, wherein the at least one filter comprises a digital pulse shaping filter.

Lilja discloses a demodulator (see figure 9 and item 816) responsive to a once-filtered signal for providing a demodulated signal having in-phase and quadrature components;

at least one analog filter (see figure 9 and item 817) responsive to the demodulated signal for providing a twice-filtered signal;

and an analog-to-digital converter (see figure 9 and item 818) responsive to the twice-filtered signal for providing the digital received signal, wherein the at least one filter comprises a digital pulse shaping filter.

It would have been obvious to one ordinary skill in the art at the time the invention was made to combine the teaching of Lilja with Wang's system such that received signal power would be measured and calculated with better accuracy.

Per claim 7, Wang discloses the step of measuring the signal power without noise. Wang doesn't disclose whether it occurs before dispreading and before decoding and wherein in all steps within a wideband code division multiple access system.

Lilja discloses the step of measuring post-filter power occurs before dispreading and before decoding occurs, and wherein all steps occur within a wideband code division multiple access system (see figure 8 and page 2 and line 35-page 3 and line 30).

It would have been obvious to one ordinary skill in the art at the time the invention was made to combine the teaching of Lilja with Wang's system such that received signal power would be measured and calculated with better accuracy and higher performance.

Per claim 14, Wang further discloses the step of estimating the ratio of the adjacent channel interference to the communication channel power. Wang doesn't disclose also dependent upon analog filter attenuation which occurs in the mobile device prior to the received signal being provided by the analog-to-digital-converter, and wherein the analog filter attenuation is known from production tuning. It is inherent that an attenuation process is within the system before the received signal being provided by the A/D converter and wherein the analog filter attenuation is known from production tuning in order to improve the performance of converting.

Per claim 26, Wang doesn't disclose a despreader responsive to the digitally filtered signal for providing a despread signal; and a decoder responsive to the despread signal for providing an output signal, wherein the wireless communication network employs wideband code division multiple access.

Lilja discloses a despreader (see figure 8 and item 822) responsive to the digitally filtered signal for providing a despread signal; and a decoder (see figure 8 and item 826) responsive to the despread signal for providing an output signal, wherein the wireless communication network employs wideband code division multiple access.

It would have been obvious to one ordinary skill in the art at the time the invention was made to combine the teaching of Lilja with Wang's system such that all the components are necessary for a WCDMA device.

Per claim 32, Lilja further discloses the handover information signal has a magnitude indicative of a requested frequency channel that is untested by the mobile device and to which a handover is requested (see page 3 and line 1-15).

Per claim 34, Lilja further discloses that the certain threshold is a constant associated with the mobile device (see page 3 and line 1-15).

Per claim 35, Wang further discloses that the certain threshold is determined by the radio network subsystem (see column 5 and lines 51-63).

Per claim 37, Lilja further discloses that the alternative communication channel connects the mobile device to the radio network subsystem (see page 3 and 1-15).

Per claim 38, Wang further discloses that the alternative communication channel connect the mobile device to a different radio network system (see column 5 and lines 51-64).

Per claim 30, Wang further discloses the step of estimating the ratio of the adjacent channel interference to the communication channel power. Wang doesn't disclose also dependent upon analog filter attenuation which occurs in the mobile device prior to the received signal being provided by the analog-to-digital-converter, and wherein the analog filter attenuation is known from production tuning. It is inherent that an attenuation process is within the system before the received signal being provided by the A/D converter and wherein the analog filter attenuation is known from production tuning in order to improve the performance of converting.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Yuwen Pan whose telephone number is 571-272-7855. The examiner can normally be reached on 8-5 M-F.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Nick Corsaro can be reached on 571-272-7876. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Yuwen Pan
June 25, 2005

NICK CORSARO
PRIMARY EXAMINER